

times cloudy, during the exposure on each occasion, and consequently the nebulae are not well developed, but what is shown confirms the features on the other negatives.

On December 29 I obtained the sixth negative, an enlargement of which I now present to the Society, and have already given in these notes a brief description of its general appearance.

The photographs are placed in the Library.

A New Variable Star in Puppis. By A. Stanley Williams.

The variability of the star L. 3105 in *Puppis* does not seem to have attracted attention hitherto. Whilst in southern latitudes last winter, I paid considerable attention to the magnitudes of the stars, and on February 17, 1886, noticed it as being exactly equal in brightness to the neighbouring star L. 3069. Upon referring to some previous determinations of magnitude I found that it had been rated both brighter and fainter than this star, and as these two stars had always been observed for magnitude at the same time, there seemed to be a reasonable suspicion that one or other of them was variable, and they were consequently kept under examination. Further observations soon showed that this suspicion was correct, and that L. 3105 is the variable star. The following table gives all the determinations of magnitude of these two stars which I was able to obtain.

Date. 1885.	Estimated Mags.		Remarks.
	L. 3069.	L. 3105.	
Nov. 14	5.05	5.4	
21	4.7	4.4	
1886.			
Feb. 12	4.7	4.55	L. 3105 distinctly a little brighter than L. 3069.
17	4.5	4.5	The two stars exactly equal.
21	4.7	4.7	Equal.
Mar. 16	4.7	4.9	L. 3069 distinctly a little brighter than L. 3105.
21	4.8	5.2	L. 3069 <i>distinctly</i> and <i>considerably</i> brighter than L. 3105.
22	4.9	4.7	L. 3105 distinctly brighter than L. 3069.
30	5.2	5.4	The relative brightness probably more exactly estimated than the actual determinations of brightness, the stars being very low. Two or three days previous L. 3069 was seen distinctly superior to L. 3105, but the date was not registered.

The results are clearly not sufficiently numerous to indicate in a satisfactory manner the period of variation. This, however, is probably short, and if the differences between the brightness of the two stars L. 3069 and L. 3105 are chiefly considered, the observations are all well represented by a period of about 4.2 days; the probable extent of the variation being about .7 of a magnitude. The star L. 3105 must have been near a maximum on November 21, 1885, and again on March 22, 1886, but not so near; and near a minimum on March 21, 1886.

The colour of the new variable was noted as "orange yellow" on February 12, 1886. The magnitudes both of this and L. 3069 are given as 5.0 in the *Uranometria Argentina*; Lacaille made them 6 mag., and in the Brisbane Catalogue they are also put at this figure. Behrmann's estimations are $5\frac{1}{3}$ mag. for L. 3069, and 5 mag. for L. 3105. The estimations of brightness given above were made by means of an opera-glass accurately focussed; the comparison stars were as under, the magnitudes being assumed from the "Harvard Photometry":—

	Canis Majoris	= 4.5 mag.
μ	" "	= 5.2 "
17	" "	= 5.9 "
HP. 1342	" "	= 6.1 "

The position of L. 3105 for 1887.0 is R.A. $7^h 55^m 0^s$, Dec. S. $48^\circ 55' 4''$.

West Brighton: Dec. 28, 1886.

On the Variability of the Spectrum of γ Cassiopeiae.
By Ralph Copeland, Ph.D.

On page 16 of the current volume of the *Monthly Notices*, Mr. O. T. Sherman quotes a passage from Miss Clerke's "History of Astronomy during the Nineteenth Century," which says that the brilliant rays indicative of hydrogen in the spectrum of γ Cassiopeiae died out during the nine years, 1874–1883. As to the fading of the rays there is room for little doubt, but the epochs of their disappearance and reappearance seem unfortunately quite indeterminate. Possibly the lines appear and vanish at comparatively short intervals, for there are two records of their having been seen here nearly in the middle of the nine years mentioned above. The most precise observation was made on Dec. 20, 1879, when testing a large experimental spectroscope which separated the D lines in the Moon's spectrum, and also showed four lines in that of the Great Nebula in *Orion* on the same night. The bright C line was then noted as "superbly